MARKET FORGE
INDUSTRIES INC.

4200 & 4292
HALF SIZE ELECTRIC CONVECTION OVEN
PARTS AND SERVICE MANUAL

EFFECTIVE SEPTEMBER 23, 2014

Superseding All Previous Parts Lists.
The Company reserves the right to make substitution in the event that items specified are not available.
ERRORS: Descriptive and/or typographic errors are subject to correction.

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REVERSING THE DOOR SWING

1. Remove door handle, P/N 08-5205, by removing three slotted screws located on edge of handle.
2. Loosen two upper hinge pin screws. Pin will drop into door.
3. Remove door by tilting top of door outward while lifting door off of lower hinge pin.
4. Remove catch plate assembly from face of oven.
5. Remove four round head machine screws from opposite side of oven face.
6. Re-install on other side of oven face, the four round head machine screws removed in step 5.
7. Re-locate and install catch plate assembly at new location.
8. Hold door in new position and allow hinge pin to slide out. Tighten two screws to hold pin in this position.
9. Release the (new) top hinge pin and re-install door in the new position. Push up hinge pin and tighten two screws to hold upper hinge pin in place.
10. Replace handle using hardware removed in step 1.
11. Adjust door by resetting adjustment on catch plate assembly.

REMOVAL & REPLACEMENT OF PARTS

WARNING

Disconnect oven from main power supply before working on oven.

DOOR ADJUSTMENT (OLD STYLE)

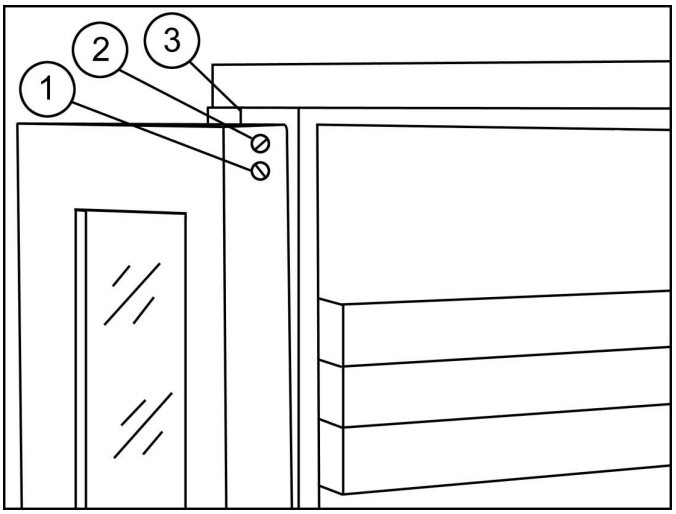
The door was properly adjusted at the factory, if door does not open or close properly adjust the ball plunger catch as .follows:

1. Remove adjusting wrench from back of manual and insert in notches on sides of ball plunger.
2. Loosen jam nut with wrench.
3. Turn adjusting wrench left or right until ball plunger engages in door striker plate for best operation.
4. Tighten jam nut with wrench while adjusting wrench is still engaged in notches.
5. Return adjusting wrench to back of manual.

OVEN DOOR

New Style Door

6. Remove lower screw (item 1) from upper hinge assembly of door.
7. Loosen top screw (item 2) from upper assembly.
8. Push upper hinge pin (item 3) into door.
9. Rotate top of door forward to clear upper frame.
10. Pull up and out on door to remove.



Old Style Door

Reverse above procedure being sure to put as many washers under as there were before removal.

GASKET

Removal

1. Remove all screws from gaskets.
2. Remove all gaskets.

Replacement

1. Replace top and bottom metal gaskets on front off oven liner and screw in place.
2. Replace left and right side metal gaskets and screw in place.

BLOWER WHEEL

Removal

1. Shut off main power supply.
2. Remove baffle by placing hard under back end and rotating baffle up and out.
3. Loosen set screws located in the center of the blower wheel on the wheel hub.
4. Pull blower wheel off of shaft.

Replacement

1. Remove metal burrs and foreign matter from motor shaft with emery cloth or sandpaper.
2. Lubricate blower wheel hub with high graphite grease. (Remove blower and lubricate at least once every six months).
3. Place blower wheel on shaft. Make sure set screws are positioned over the flats on the shaft. Make sure there is 3/16” clearance between blower wheel and oven wall.
4. Tighten set screws to 160 in-lbs torgue.

REMOVAL & REPLACEMENT OF PARTS

MOTOR

Removal

1. Make sure main power supply is disconnected from oven.
2. Remove baffle and blower wheel.
3. Remove right side panel.
4. Open control compartment cover.
5. Remove motor bolt access plate.
6. Remove four nuts and blots holding motor to motor mount.
7. Remove cover from wiring box mount on motor and disconnect wires.

Replacement

1. Revere procedure above.
2. Check motor wiring to make sure blower turns clockwise when seen from front of oven.

SWITCH

Removal

1. Make sure power supply to oven is off.
2. Open control compartment cover.
3. Disconnect wire to switch.
4. Depress spring clips on switch and push forward.

Replacement

1. Push switch into proper control panel opening until spring clips catch.
2. Reconnect wire to switch.
3. Close control cover.

CONTACTOR

Removal

1. Make sure power supply to oven is off.
2. Open control comportment cover.
3. Disconnect wire from appropriate component.
4. Unscrew fasteners of appropriate components and remove.

Replacement

1. Attach components to mounting.
2. Replace and tighten fasteners.
3. Reconnect wires.

THERMOSTAT

Removal

1. Make sure power supply to oven is off.
2. Open control compartment cover.
3. Remove racks and rack supports from oven compartment.
4. Remove baffle.
5. Disconnect thermocouple lead wires from circuit board.
6. Unscrew thermocouple from oven liner.
7. Pull thermocouple and wires through oven liner into oven compartment and remove.
8. Remove circuit board from bracket.

Replacement

1. Follow Thermostat Removal in reverse order.

HEATER ELEMENT

Removal

1. Make sure power supply to oven is off.
2. Remove right side panel.
3. Remove element terminal cover above motor and disconnect wires.
4. Remove element plate and insulation spacer.
5. Remove racks and rack supports from oven cavity.
6. Remove baffle.
7. Remove eight screws holding element assembly to the oven wall.
8. Remove elements.

Replacement

1. Follow Element Removal in reverse order.

REMOVAL & REPLACEMENT OF PARTS

HIGH LIMIT

Removal

1. Make sure power supply to oven is off.
2. Open oven door.
3. Remove all shelves and rack supports.
4. Remove baffle from right sire.
5. Unscrew fasteners from Hi-Limit on liner wall and pull out.
6. Remove wire leads from Hi-Limit.

Replacement

1. Follow Hi-Limit Removal in reverse order.

DOOR INTERLOCK SWITCH BRACKET

Old Style Removal

1. Make sure power supply to oven is off.
2. Open control compartment cover.
3. Remove wires to door interlock switches.
4. Remove two bracket retaining screws.
5. Remove interlock switch assembly.

Old Style Replacement

1. Insert long end of door activated plunger through hole in left front side of control compartment.
2. Replace spring and switches in bracket and secure switch assembly with two screws.
3. Position switches so that push buttons on switches just touch actuator plate on plunger rod.
4. Replace wires using wiring diagram as guide.
5. Replace control compartment cover.

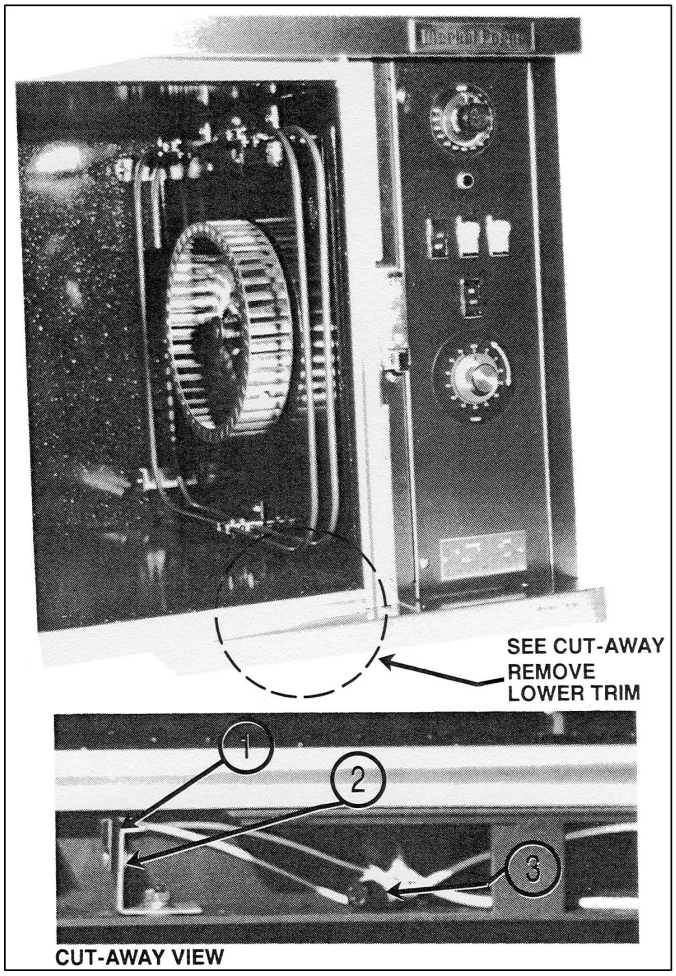
New Style Removal

1. Make sure power supply to oven is off.
2. Remove lower bottom trim, remove screws on end.
3. Remove screws from switch, to remove switch.
4. Remove marr connectors from leads, then remove switch.

New Style Replacement

1. Follow New Style Interlock Switch Removal in reverse order.

ITEM	PART NO.	DESCRIPTION
1	08-6308	Reed switch (fan interlock)
2	99-6168	Reed switch mounting bracket
3	REF.	Marr connectors, two



CUT-AWAY VIEW

THERMOSTAT CALIBRATION

THERMOSTAT CALIBRATION (OLD STYLE):

The thermostat is a device which automatically limits heat input at or below the dial setting.

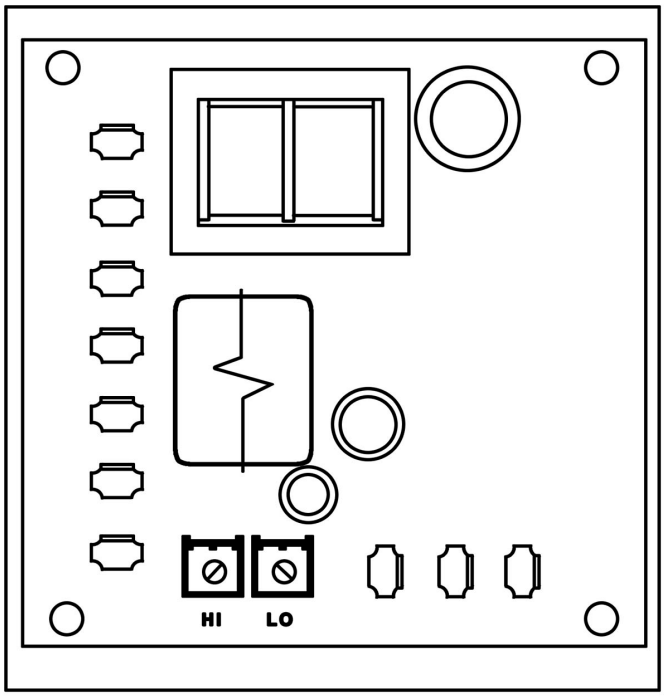
Before attempting to calibrate thermostat, make sure that the thermostat is the cause of problems experienced. Check for improper electrical service, incorrect mixes over and under proofing, incorrect temperatures, and warping pans. Thermostats are calibrated and sealed by the original manufacturer before leaving their plant. Only a qualified service person should make calibration adjustments, if they become necessary.

CALIBRATE ELECTRONIC THERMOSTAT (NEW STYLE):

1. Set oven thermostat knob at 350°F.
2. Allow oven to preheat to 350°F.
3. Observe temperature with digital thermometer.
4. If temperature goes above 350°F turn set pot labelled HI (on circuit board) counterclockwise. % turn should be sufficient.
5. Allow time for oven temperature to drop, then recheck temperature.
6. If temperature is below 350°F turn set pot labelled HI (on circuit board) clockwise.+/-5°F turn should be sufficient.
7. Repeat steps 4 to 7 until oven temperature stabilizes at 350°F+/- 5°F
8. Apply Glyptol or Duco Cement to set pot to prevent rotation.

THERMOSTAT DIAL PLATE CALIBRATION (NEW STYLE):

1. Clamp thermocouple sensor in the center of the middle rack in compartment.
2. Pass the thermocouple sensor wire through the door gasket and close the door.
3. Plug the sensor lead into the pyrometer.
4. Set the oven power switch to ON.
5. Set the thermostat knob to 350° (191°C).
6. Allow the oven to warm up for a minimum of (3) three ON/OFF cycles.

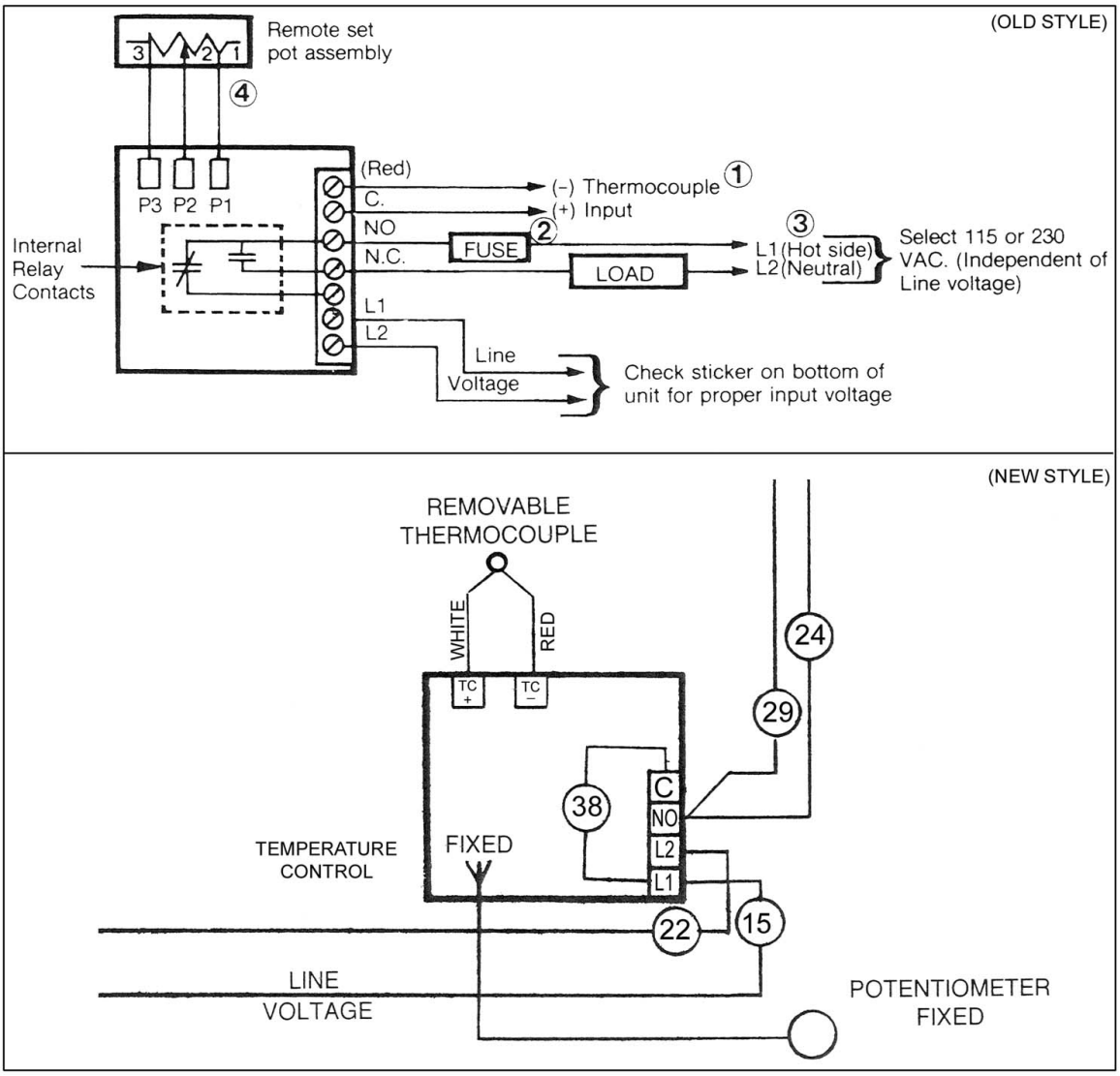


7. Record the temperature when the ele-ment indicator light goes off. If a temperature of 345°-355° is attained, no calibration is necessary .
8. If the temperature differs more than +/- 5°F from the dial setting:
   a. Pencil mark the knob pointer position as a reference point on the control panel next to the dial plate
   b. Loosen the dial plate mounting screws only enough to move the plate.
   c. Move the dial plate until calibration matches thermometer reading (350°F).

THERMOSTAT CALIBRATION

CONTROL BOARD

NOTE: New style board CANNOT BE CALIBRATED. Check thermocouple for fault in temperature control. If thermocouple is good, replace temperature control board.



TROUBLESHOOTING

PROBABLE CAUSE	REMEDY
Convector fan fails to operate.	
1. Power to oven is off.	1. Locate external circuit breakers for power and place in ON position.
2. ON-OFF switch off.	2. Place in ON position.
3. Oven door open.	3. Close door.
4. Faulty cool down switch ON-OFF switch, door switch, fan motor, wiring.	4. Test each component and connecting wire, replace as required.
Oven will not heat with thermostat at maximum setting, fan operating.	
1. Faulty thermostat wiring.	1. Test thermostat and connecting wiring. Replace as required.
2. Thermostat contacts or coil faulty.	2. Replace thermostat.
Indicator light fails to light with thermostat set, fan operating, oven hot.	
1. Indicator light burned out.	1. Replace light.
2. Faulty wiring.	2. Check wiring and repair as needed.
Erratic oven temperature.	
1. Faulty thermostat operation.	1. Recalibrate or replace as required.
Uneven heating.	
1. One or more heating elements inoperative.	1. Check wiring to elements; check for burned out elements. Replace as required.

TROUBLESHOOTING

WIRING

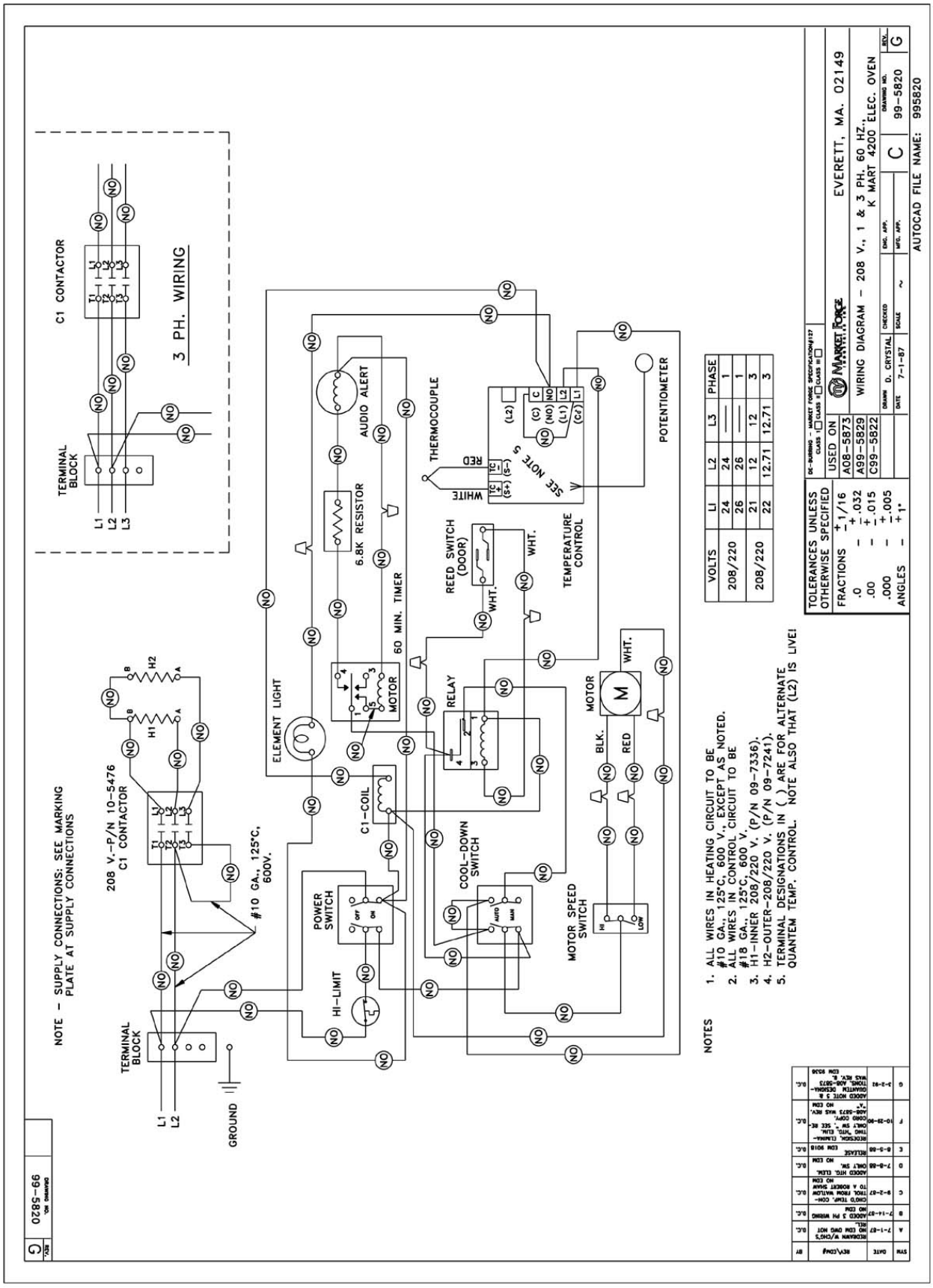
All the electrical components of the model 4200 (ON-OFF switch, door switch, thermostat control, contactors, fan motor, and indicator light) are connected to each other by wiring shown on page 5. If all the electrical components are operating correctly and the incoming power has been checked, but the unit fails to operate, the fault lies in the wiring.

Using an ohmmeter, wiring continuity between the connections, shown in the wiring diagram is readily verified. This is best done in stages, removing only those wires required for each continuity check. As each lead is replaced, it should be checked for evidence of corrosion and cleaned if necessary. All leads must be tightly attached to provide a good electrical connection.

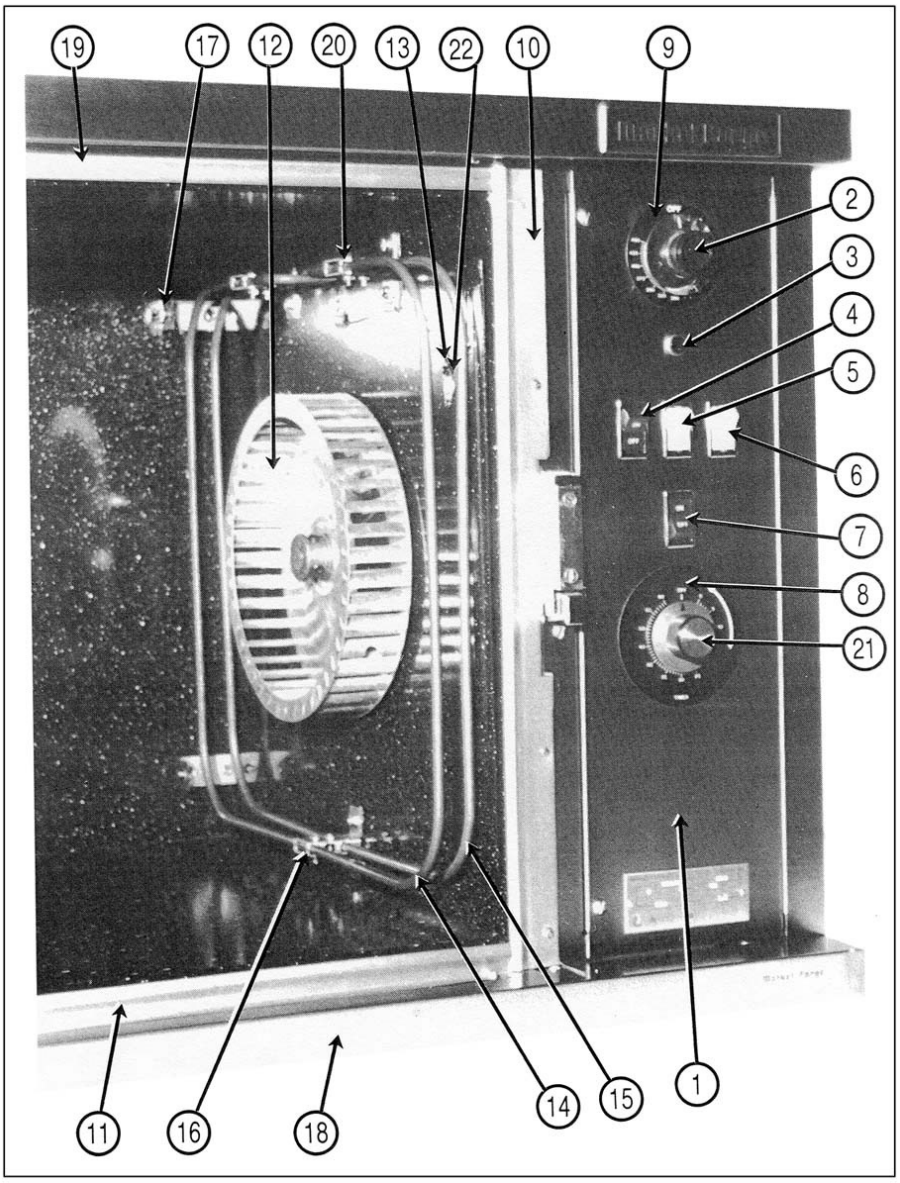
ELECTRICAL FAULT ISOLATION GUIDE

FAILURE	FAULT LOCATION
Oven will not operate when the thermostat is set.	1. Incoming power 2. Door switch 3. Thermostat control 4. ON-OFF switch 5. Cool down switch 6. Contactor 7. Wiring
Intermittent operation of heaters.	1. Thermostat control 2. Contactor coil 3. Wiring
Convector fan fails to operate.	1. Cool down switch 2. ON-OFF switch 3. Door Switch 4. Fan motor 5. Wiring
Indicator light off, heater under power.	1. Indicator light 2. Wiring
Uneven heating.	3. Heating elements 4. Wiring
(Elements Only) fails to come on.	1. Check switch 2. Check hi-limit switch 3. Check wiring

WIRING DIAGRAM



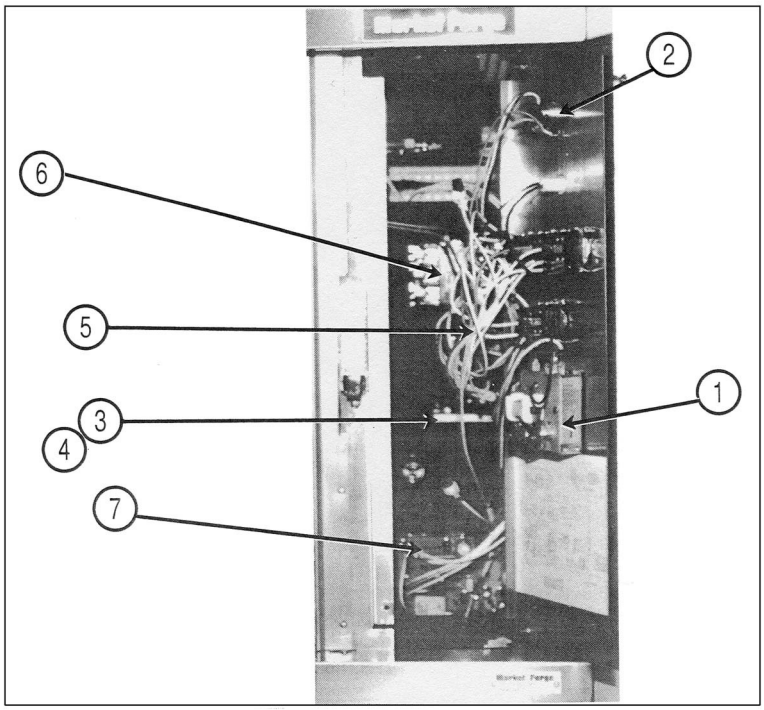
4200 OVEN



4200 OVEN

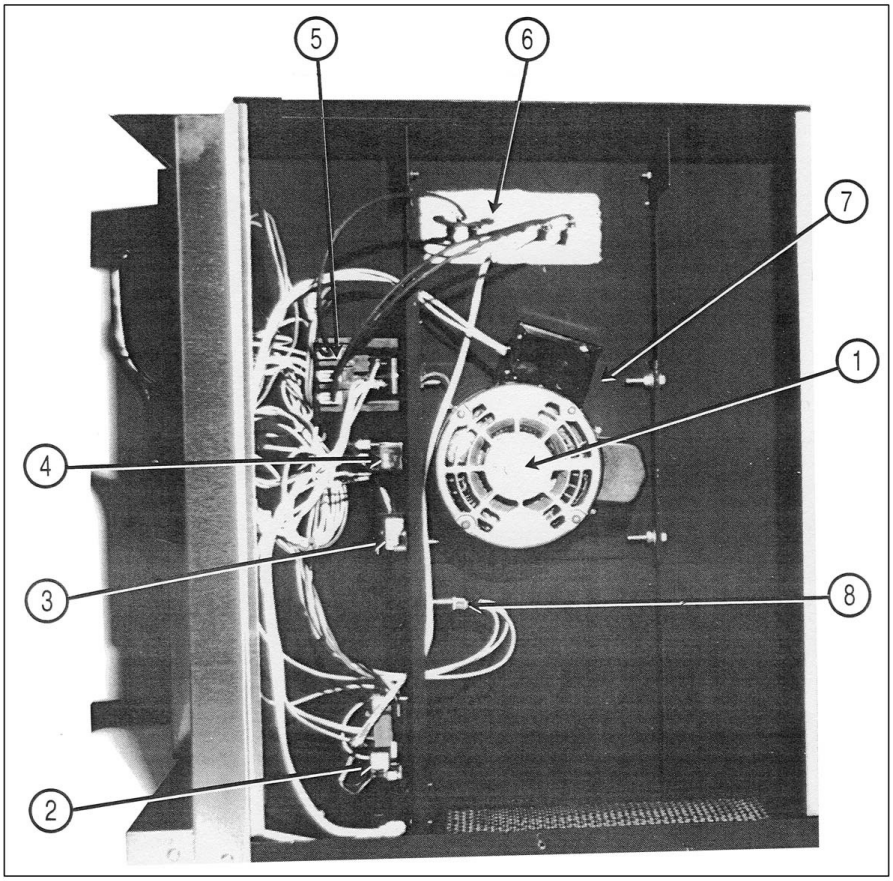
ITEM	PART NO.	DESCRIPTION
2	08-6459	THERMOSTAT KNOB
3	09-6440	RED PILOT 250V
4	09-7231	SWITCH DPDT 250V, 10 AMP, RED, ON-OFF SWITCH
5	09-7244	SWITCH DPDT 250V, 10 AMP, BLUE, BLOWER SWITCH
6	09-7235	SWITCH DPDT 250V, 10 AMP, WHITE, COOL DOWN SWITCH
7	09-7231	SWITCH DPDT 250V, 10 AMP, RED, HEATING ELEMENTS ONLY
8	08-5839	THERMOSTAT DECAL
10	99-6098	SIDE GASKET
11	99-6101	TOP AND BOTTOM GASKET
12	10-5453	BLOWER WHEEL
13	09-7259	THERMOCOUPLE
14	09-7241	HEATING ELEMENT, OUTER, 280V-2500W, 220V-2800W (EXPORT)
14A	09-7242	HEATING ELEMENT, OUTER, 230V-2571W, 240V-2800W
15	09-7336	HEATING ELEMENT, INNER, 280V-2500W, 220V-2800W
15A	09-7337	HEATING ELEMENT, INNER, 230V-2571W, 240V-2800W
16	99-6102	HEATING ELEMENT BRACKET
17	99-6130	BAFFLE SUPPORT
18	99-5051	BOTTOM TRIM
19	99-5064	TOP TRIM
20	99-6107	OVEN INTERIOR COVER PLATE
21	09-5267	60 MINUTE TIMER KNOB
22	08-6351	HI-LIMIT THERMOSTAT

CONTROL PANEL



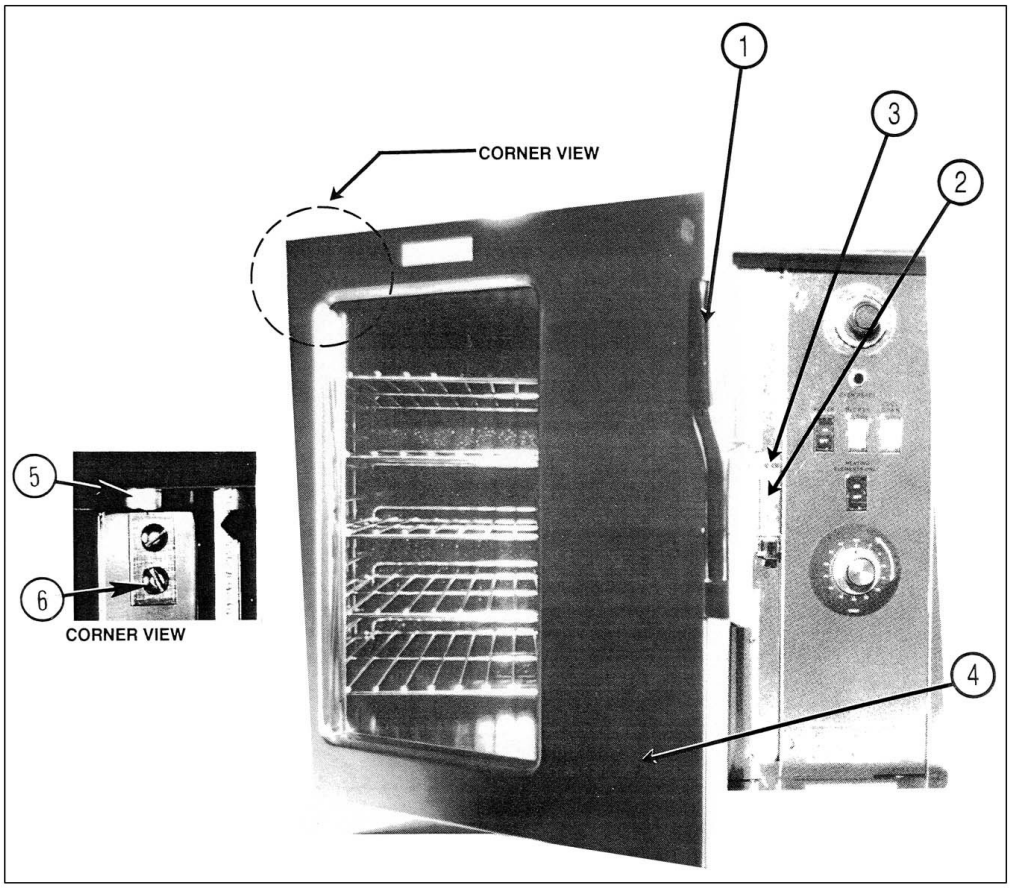
ITEM	PART NO.	DESCRIPTION
1	10-6293	60 MINUTE TIMER, 240V, 50/60 HZ
2	REF.	POTENTIOMETER, PART OF THERMOSTAT 08-6356
3	10-6649	TERMINAL BLOCK
4	10-5551	GROUND LUG
5	99-5822	CONTROL CIRCUIT WIRE HARNESS
6	10-5943	CONTACTOR, 240V, 40 AMP, 50/60 HZ, 208 & 240V
7	08-6355	TEMPERATURE CONTROLLER, 208 OR 240V

RIGHT SIDE VIEW



ITEM	PART NO.	DESCRIPTION
1	09-7230	BLOWER MOTOR, 208/230V, 1/4 HP, 2 SPEED
2	08-6355	TEMPERATURE CONTROLLER, 208-240V
3	10-6649	TERMINAL BLOCK
4	10-6874	S.P.S.T. RELAY, FOR REED SWITCH, 240V
5	10-5943	CONTACTOR, 208V, 40 AMP, 50/60 HZ, 208V & 240V
6	99-6108	HEATING ELEMENT COVER PLATE
6A	99-6109	HEATING ELEMENT COVER GASKET
7	99-6140	MOTOR BRACKET
8	09-6516	SIREN AUDIO ALERT, 120V

DOOR ASSEMBLY



ITEM	PART NO.	DESCRIPTION
1	08-5205	DOOR HANDLE ASSEMBLY
2	99-5169	CATCH, MAGNETIC
3	99-6115	SPACER CATCH
4	99-6170	DOOR ASSEMBLY
5	99-6153	HINGE PIN
6	99-6154	HINGE PIN PLATE
	99-6098	DOOR GASKET (NOT SHOWN)
	99-6101	DOOR GASKET TOP (NOT SHOWN)

OVEN COMPARTMENT INTERIOR

Sorry - no drawing available

PART NO.	DESCRIPTION
99-5025	BAFFLE
99-5057	RACK SUPPORTS
99-5056	RACKS
99-5052	EXTERIOR TOP PANEL
99-5058	EXTERIOR REAR PANEL
99-5020	RIGHT SIDE ACCESS PANEL
99-5035	LEFT SIDE PANEL
99-6176	28” HIGH STAND
99-6177	18” STACKED KIT WITH STAND